

REMARKS / ARGUMENTS

Status of Claims

Claims 1, 3, 5-11, 13, and 15-21 are currently pending. Claims 1, 3, 5-11, 13, and 15-21 stand rejected.

Rejections

Claim rejections under 35 U.S.C. §103

Claims 1, 3, 7, 8-11, 13, 15, and 18-21 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Matsumoto et al. (6,285,170) in view of Gordon (5,815,386). The Examiner asserts that Matsumoto discloses the claimed device except for having the feedback inductor inductively coupled to the input inductor of the boost converter and proceeds to rely on Gordon for a teaching of providing the feedback inductor inductively coupled to the input inductor of the boost converter.

Independent claim 1 requires, inter alia, a rectifier circuit being a bridge circuit including at least two controllable rectifying elements that can be switched on and off by a switching signal whereby each controllable rectifying element has its control input connected to the feedback inductor for feeding back the switching signal to the rectifying element to switch the rectifier circuit on and off. In paragraph 2 of the Detailed Action, the Examiner points to thyristors 52 and 72 in Figure 8 of Matsumoto for a teaching of the at least two controllable rectifying elements required by claim 1. Applicants respectfully assert that the Examiner has misinterpreted the teaching of Matsumoto and furthermore that the Examiner's reliance upon elements 52 and 72 is misguided. Referring first to Matsumoto at column 3, line 40, the reference teaches that in a steady state of the power supply 71, thyristors 52 and 72 are each

controlled to be in an ON state by a DC voltage generated by a diode 53 and a capacitor 54, whereby an AC voltage, VAC brings the thyristors 52 and 72 into conduction in place of a diode stack 4 to be input to the boost converter 5. The so-called diode stack 4 is a rectifier as described earlier by Matsumoto at column 1, lines 24-25. It is clear from Matsumoto's recitation at column 3 that the thyristors 52 and 72 are not part of a bridge rectifier circuit as required by claim 1. Furthermore, Matsumoto's teaching in Figure 8 actually teaches away from the claimed invention since it possesses one of the problems that the claimed invention seeks to resolve, limiting an input inrush current. Referring again to the Matsumoto reference beginning at column 3 line 64 the reference describes the problem with this arrangement in that during momentary interruption of input, the switch 9 continues its switching operation until the charging voltage is sufficiently lowered. Therefore, the inrush current is allowed to flow into the capacitor 7 via the thyristors 52 and 72 when the input is restored from momentary interruption before the charging voltage is sufficiently lowered, and hence it is impossible to adequately limit the inrush current flowing after the restoration of the input.

Furthermore, the Examiner's attention is directed to the office action dated July 7, 2005 wherein the Examiner admits, in paragraph 4 of the Detailed Action, that the Matsumoto reference does not disclose "at least two rectifying elements connected to a least one of the input lines and two controllable rectifying elements that are switched." This further supports the Applicant's contention that Matsumoto neither teaches nor suggests a bridge circuit including at least two controllable rectifying elements that can be switched on and off by a switching signal whereby each controllable rectifying element has its control input connected to the feedback inductor for feeding back the switching signal to the rectifying element to switch the rectifier circuit on and off as required by claim 1. For these reasons, the Applicants respectfully request

reconsideration and withdrawal of the 35 U.S.C. §103 rejection of claim 1 and those that depend therefrom, namely claims 3, 7, and 8-11.

With respect to independent claim 13, it requires, inter alia, a feedback inductor being connected to a control input of a rectifying element of the rectifier circuit for feeding back a switching signal to the controllable rectifying element. Applicants respectfully assert that the Examiner's reliance upon elements 52 and 72 of Matsumoto is misguided. As discussed above, it is clear from Matsumoto's recitation at column 3 that the thyristors 52 and 72 are not part of a rectifier circuit referred to as the diode stack 4 and therefore can not be interpreted to teach nor suggest that the feedback inductor is connected to a control input of a rectifying element of the rectifier circuit as required by claim 13. Matsumoto's teaching in Figure 8, in fact, teaches away from the claimed invention since it possesses one of the problems that the claimed invention seeks to resolve, limiting an input inrush current. Referring again to the Matsumoto reference beginning at column 3 line 64 the reference describes the problem with this arrangement in that "during momentary interruption of input, the switch 9 continues its switching operation until the charging voltage is sufficiently lowered. Therefore, the inrush current is allowed to flow into the capacitor 7 via the thyristors 52 and 72 when the input is restored from momentary interruption before the charging voltage is sufficiently lowered, and hence it is impossible to adequately limit the inrush current flowing after the restoration of the input."

Furthermore, the Examiner's rejection of claim 13 does not address another recited element in a claim. Specifically, claim 13 requires, inter alia, a controllable rectifying element connected between a current supplying output of the rectifier circuit and an input of the boost converter for controlling the current supply to the boost converter. The only reference to any controllable rectifying element in the Examiner's rejection at paragraph 2 of the Detailed Action

is to thyristors 52, 72. These are relied upon, albeit erroneously, to show feeding back a switching signal to the controllable rectifying element of the rectifier circuit. Those same elements 52,72 do not appear to be, nor could they be applied to also show a controllable rectifying element connected between a current supplying output of the rectifier circuit and an input of the boost converter for controlling the current supplied to the boost converter as required by claim 13. The Examiner therefore has not made a *prima facie* case of obviousness for rejecting claims 13, and those that depend therefrom, namely 15 and 18-21. Withdrawal of this rejection with respect to claims 13, 15 and 18-21 is therefore respectfully requested.

Claims 5, 6, 16 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsumoto in view of Gordon. The Examiner asserts that Matsumoto and Gordon disclose the claimed invention except for the number of windings and the switching signals being controlled by ratio of the number of windings and the windings and the switching signal being controlled by polarization of the windings. The Examiner further concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine these elements. Claims 5 and 6 depend from claim 1 and claims 16 and 17 depend from claim 13 and require the elements that are lacking from the combination of Matsumoto and Gordon as described above. For the these reasons claims 5, 6, 16 and 17 are believed to be patentable distinct from the combination. Reconsideration and withdrawal of the rejection is respectfully requested.

Conclusion

For all of the foregoing reasons and in view of the foregoing argument, Applicants respectfully contend that the application is now in condition for allowance. Accordingly, Applicants respectfully request reconsideration and allowance of claims 1, 3, 5-11, 13, and 15-21, and issuance of a Patent for the subject invention. If the Examiner cares to discuss anything presented here to further prosecution of this application, he is invited to contact the undersigned Attorney for the Applicant. Please charge any additional requisite fees relating to this amendment and response to Deposit Account No. 501581.

Respectfully submitted,

Barley Snyder
Customer No. 29450

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Salvatore Anastasi
Registration No. 39,090
Attorney for Applicants
Phone: (610) 722-3899
Facsimile: (610) 889-3699